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- I. *A Monograph of British Braconidae. Part VII.*  
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PLATE I.

- IV. DACNUSA, Hal. (Continued from Trans. Ent. Soc. Lond.  
1895, p. 398.)

1. *Dacnusa adducta*, Hal.

*D. adducta*, Hal., Hym. Brit., ii., v. 13 (1839), ♂ ♀;  
Marsh., Species des Hym. d'Eur. et d'Alg. Bracon.,  
vol. ii., p. 461, ♂ ♀.

♀ Black, shining, finely pubescent, middle of the abdomen brownish. Head wider than the thorax; palpi obscure. Antennæ twice as long as the body, slender, setiform, 31-32-jointed, blackish, testaceous at the base. Thorax short, gibbous; furrow of the mesopleuræ smooth, very short and narrow; metathorax pubescent, not shining. Wings ample, hyaline with a brownish tinge; squamulæ testaceous; nervures and stigma dull ferruginous; basal areolets short and small; radial areolet longer than the præ-brachial, dilated in the middle, sinuated and contracted at both ends; stigma elongate, linear, emitting the radial nervure near its base; 2nd<sup>\*</sup> cubital areolet sessile, *i.e.*, touching the stigma, which

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\* In Trans. Ent. Soc. Lond. 1895. p. 395. Table of Species (2) 1; for "First cubital areolet," read "Second," etc.

cuts off its upper angle together with the 1st abscissa; 2nd discoidal areolet short, subquadrate; recurrent nervure rejected. Legs flavotestaceous; tips of the tarsi obscure. Abdomen as long as the thorax, spathulate, subtruncate at the apex; 1st segment black, linear, twice as long as its apical width, hardly aciculate, not shining, its tubercles situated in the middle; the following segments piceous, becoming darker towards the anal extremity. Terebra very short. ♂ Antennæ longer, 32-jointed; 2nd cubital areolet still further invaded by the stigma; abdomen narrower, depressed. Length, 1 line; exp.,  $2\frac{1}{2}$  lines.

This species is easily distinguished from all others by the peculiarity of the 2nd cubital areolet. It forms by itself the genus *Agonia*, Först. Rare in Ireland, according to Haliday. I have taken both sexes in England, at St. Alban's, Herts, and Bishop's Teignton, Devon. See Trans. Ent. Soc. Lond. 1895, pl. vii., fig. 12.

## 2. *Dacnusa phœnicura*, Hal.

*D. phœnicura*, Hal., Hym. Brit., ii., p. 6 (1839), ♂;  
Marsh., *lib. cit.*, p. 461, ♂.

♂ Abdomen rufous with the 1st segment blackish, 2-3 piceous, the rest testaceous; radial areolet nearly reaching the tip of the wing. Body black, with long hairs; head stout, punctured, wider than the thorax; front smooth; face and cheeks scabrous; mandibles reddish; palpi testaceous. Antennæ blackish, shorter than the body, 26-jointed, the 2nd joint rufescent. Thorax subcylindric, narrowed at both ends, punctured anteriorly; furrows of the mesothorax humeral only, incomplete, not meeting posteriorly; a longitudinal channel before the scutellum; antescutellar fovea smooth, bipartite; metathorax scabrous, sloping, narrowed posteriorly; mesopleuræ rugulose anteriorly, smoother in the middle, their furrow rugulose, subobsolete. Wings hyaline; squamulæ brownish testaceous; nervures and stigma fuscous, the latter linear-lanceolate, emitting the radial nervure before one-third of its length; radial areolet oblong, attenuated towards the apex. Fore legs testaceous; middle pair the same, but with the femora and tibiæ darker; hind legs incrassated, blackish, with the trochanters and tarsi rufescent; hind femora one-half shorter than their tibiæ. Abdomen not so wide as the thorax, depressed, pubescent; 1st segment scarcely twice as long as its apical width, not much narrowed at the base, blackish, finely rugulose, having a longi-

tudinal carina which is bifurcate at the base ; tubercles minute, placed near the base ; segments 2-3 brown, very finely rugulose, carinate, smooth, bordered posteriorly with testaceous, which is the colour of the following segments. ♀ unknown. Length,  $1\frac{1}{4}$  lines.

Taken once only by Haliday in Ireland, and not seen since by any one. The author adds that it is a singular species, forming perhaps a section apart, but imperfectly described from an injured specimen.

### 3. *Dacnusa talaris*, Hal.

*D. talaris*, Hal., Hym. Brit., ii., p. 8 (1839). ♂ ♀ ;  
Marsh., *lib. cit.*, p. 464, ♂ ♀.

♂ ♀ Mesonotum with the mere commencement of a medial furrow, the two ordinary furrows subobsolete, converging towards a fovea in front of the scutellum. Black, with dark pubescence ; mandibles rufescent ; palpi testaceous. Antennæ of both sexes about 32-jointed, hardly longer than the body. Thorax oblong-oval, pubescent, the mesothoracic furrows punctulate ; on the fore margin is a short linear impression ; metathorax obtuse, rugose-punctate, with yellowish pubescence, scarcely carinate in the middle. Wings slightly infumated ; squamulæ brownish ; nervures and stigma fusco-ferruginous ; the latter linear, emitting the radial nervure not far from the base ; radial areolet elongate, sinuated, attenuated towards the extremity. Legs fusco-testaceous ; all the coxæ, upper margin of the 4 posterior femora towards the apex, tips of the 4 anterior tarsi, and the whole of the hind tarsi, fuscous. Abdomen as broad as the thorax, and scarcely longer, oblong, subsessile, narrowed at the base ; 1st segment of the ♂ almost linear, of the ♀ obconic, robust, somewhat gibbous, one-half longer than its apical width, punctate-rugose, pubescent, with hardly visible tubercles ; 2nd segment pubescent, rugosely punctate at the extreme base, but occasionally smooth, in both sexes. Terebra scarcely exerted. Length,  $1\frac{1}{3}$  lines ; exp.,  $2\frac{2}{3}$  lines.

VAR. Scape of the antennæ, and legs, dull testaceous ; last joint of the tarsi blackish.

This is extremely like *D. lateralis* (sp. 15), but differs in having much shorter antennæ, and the base of the 2nd abdominal segment usually, though not always, rugose. It is moderately common, and has been taken in England, Ireland, and Central Europe ; many specimens are in the present writer's collection.

4. *Dacnusa semirugosa*, Hal.

*D. semirugosa*, Hal., Hym. Brit., ii., p. 7; Marsh., *lib. cit.*, p. 463, ♂ ♀.

♂ ♀ Radial nervure not sinuated, forming a parabolic curve, remote from the tip of the wing. Black, shining. Antennæ about 36-jointed, somewhat shorter than the body in the ♀, longer in the ♂; the subapical joints short and oval. Mesothoracic furrows very slender, smooth, converging towards a fovea in front of the scutellum; metathorax rugose, carinated in the middle, covered with not very dense pubescence; furrow of the mesopleuræ rugose. Wings slightly infumated; squamulæ brownish; nervures and stigma fuscous, the latter linear-lanceolate, gradually attenuated to the apex, emitting the radial nervure before one-third of its length; radial areolet lanceolate; 2nd discoidal areolet open on the outer side; posterior wings with a punctiform vestige of a recurrent nervure, not found in other species. Legs brownish red; coxæ and base of the trochanters black; femora often streaked with black on the upper edge, the 4 posterior frequently blackish altogether. Abdomen sessile, oblong, depressed, not much narrowed at the base; 1st segment obconic, one-half longer than broad, longitudinally rugulose, with scattered pubescence and almost invisible tubercles; 2nd segment finely rugulose, the rest smooth. Terebra concealed. Length, 2 lines; exp., 3½ lines.

A large species, and easy to determine. Not uncommon: found in Ireland by Haliday; in England by Rudd, Walker, and myself, in Yorkshire, S. Wales, and Wiltshire.

5. *Dacnusa striatula*, Hal.

*D. striatula*, Hal., Hym. Brit., ii., p. 7; Marsh., *lib. cit.*, p. 465, ♂.

♂ Mesonotum impressed longitudinally with a deep medial furrow; the two ordinary furrows distinct, but not extending to the point of junction in front of the scutellum. Black, pubescent; mandibles brownish; palpi blackish. Antennæ somewhat longer than the body (in my specimen), as long as the body (according to Haliday), 23-jointed. Mesothoracic furrows obsolete, incomplete posteriorly; metathorax obtuse, without a median carina, coarsely rugose, reticulated; furrow of the mesopleuræ broad, rugose. Wings slightly infumated; squamulæ brownish; nervures and stigma dark fuscous; the latter linear, rather stout, emitting

the radial nervure near the base; radial areolet acuminate; radial nervure sinuated; 2nd discoidal areolet completely closed. Legs testaceous; coxæ blackish; hind tibiæ infuscated at the apex, their tarsi blackish. Abdomen somewhat narrower and longer than the thorax, oblong, depressed, contracted at the base, shining; 1st segment more than twice as long as its breadth, punctate-rugose, the tubercles obsolete; 2nd striolate in the middle, smooth at the sides, somewhat narrowed towards the base; 3rd and following segments smooth, very shining. ♀ unknown. Length,  $1\frac{1}{2}$  lines; exp., 3 lines.

This and the three preceding species are distinguished from the rest by the rugosity of the 2nd segment at its base. *D. striatula* much resembles sp. 4, but is smaller. According to Haliday it is rare in the north of Ireland: my only specimen was taken at Niton, in the I. of Wight.

#### 6. *Dacnusa tristis*, Nees.

*Alysia tristis*, Nees, Mon., i., p. 258, ♂ ♀; *D. tristis*, Marsh., lib. cit., p. 467, ♂ ♀.

*D. ampliator*, Hal., Hym. Brit., ii., p. 8, ♂ ♀ (*nec* Nees).

♂ ♀ Deep black, shining, with whitish pubescence; palpi dusky. Head transverse, wider than the thorax. Antennæ longer than the body, 25-jointed in the ♀, 31-jointed in the ♂. Furrows of the mesothorax merely inchoate, humeral; mesonotum faintly impressed with a longitudinal channel terminating before the scutellum in an oval fovea, deep and elongate; furrow of the mesopleuræ crenulate; metathorax very short, rounded, granulated and dull, somewhat densely covered with whitish pubescence. Wings ample, hyaline, sometimes with a lacteous tinge, sometimes more cinereous; squamulæ, nervures, and stigma black, this last elongate, rather stout, acuminate at the apex; radial nervure slightly sinuated; radial areolet longer than the præbrachial; recurrent nervure interstitial; 2nd discoidal areolet not quite closed on the outer side. Fore legs brownish testaceous, their femora and tibiæ with a black streak above, or almost wholly blackish; tarsi obscure; 4 posterior legs black, with the 2nd joint of the trochanters and the base of the tibiæ dull testaceous. First abdominal segment obconic, twice as long as its apical width, narrowed at the base, margined, finely striolate, furnished with two carinæ, convergent and meeting before the hind margin,

enclosing a triangular space; tubercles not prominent; the following segments form together a short oval, smooth and shining. *Terebra* concealed. ♂ similar; antennæ longer; 1st segment sublinear, scarcely wider behind; the following segments oblong, longer than those of the ♀. Length,  $1-1\frac{1}{2}$  lines; exp., 2-3 lines.

Haliday seems to have confused this species with the following, especially in his account of the antennæ, taking the number of joints from *D. tristis*, and the length from *D. ampliator*, whereby the description is rendered doubtful. According to Haliday the number of joints ♂ ♀ is 21-23; according to Nees it is 24-25 for the ♂, the ♀ not being mentioned. As to length, the antennæ ♂ are shorter than the body, according to Haliday, while those of the ♀ are hardly longer than the head and thorax; a character belonging only to the following species. *D. tristis* is common in England; Goureau states it to be a parasite of the dipterous *Agromyza nigripes*, Macq.; and it is included by Giraud in his list of observed cases of parasitism, where it is reported to have issued from galls made by some dipterous insect on the roots of *Artemisia campestris*. *D. lugens*, Hal. (Hym. Brit., ii., p. 26), from Norway (Hammerfest), is a closely allied species, if not the same.

7. *Dacnusa ampliator*, Nees. (Pl. I., figs. 1, 1a.)

*Alysia ampliator*, Nees, Mon., i., p. 258, ♂ ♀; *D. ampliator*, Marsh., *lib. cit.*, p. 468, ♂ ♀ (*nec* Haliday).

Antennæ ♀ not longer than the head and thorax, 15-17-jointed; those of the ♂ not quite as long as the body, 21-jointed. ♀ Form short and stout; deep black, shining, with whitish pubescence; palpi dusky; mandibles reddish. Head large, transverse, wider than the thorax; face covered with whitish down; front excavated, with a minute fovea at the bottom of the hollow. Antennæ moniliform after the 7th joint, incrassated towards the extremity, the extremity itself being slender. Mesothoracic furrows hardly inchoate; no fovea, nor channel, before the scutellum; metathorax very short, not shining, covered with whitish down, vertically truncate behind; a transverse carina separates the horizontal from the vertical surface, the former of which is again divided into two compartments by a longitudinal carina. Wings whitish, almost lacteous; nervures and stigma testaceous or pale brown,

the latter short (for the genus), not more than four times as long as its breadth, which is equal to the length of the 1st abscissa : radial areolet not longer than the præbrachial, remote from the tip of the wing, acuminate ; radial nervure slightly sinuated ; recurrent nervure distinctly rejected. Fore legs brownish, with the upper edge of the femora, the tips of the tibiæ, and the tarsi, blackish : 4 posterior legs, or sometimes all the legs, blackish, with the 2nd joint of the trochanters, and the knees, reddish. Abdomen small, narrower and not longer than the thorax, subclaviform, convex ; 1st segment twice as broad at the extremity as at the base, finely aciculate and margined ; the following segments smooth and shining. Terebra almost concealed. ♂ Antennæ not thickened before the extremity ; fore legs entirely testaceous ; abdomen forming a longer oval. Length,  $\frac{3}{4}$  line ; exp., 2 lines.

The antennæ alone are decisive of this species, though it is otherwise abundantly distinct from the preceding. It may have been known to Haliday, as his description of *D. ampliator* contains some of its characters, mixed with those of *D. tristis*. However that may be, Dr. Capron discovered several specimens at Shiere, near Guildford, some of which he gave to me ; he considered them to represent Förster's genus *Brachystropha* (Synopsis, p. 274). The plate gives, I believe, a faithful likeness of this curious little insect ; at least Dr. Capron has expressed his approval of the figure. The species was originally taken in Franconia by Nees von Esenbeck.

8. *Dacnusa petiolata*, Nees. (Pl. I., fig. 2.)

*Alysia petiolata*, Nees, Mon., i., p. 256, ♂.

*D. petiolata*, Hal., Hym. Brit., ii., p. 10, ♂ ♀ ; Marsh., lib. cit., p. 470, ♂ ♀.

Abdomen spatulate ; 1st segment linear, almost four times as long as the hind coxæ ; antennæ ♀ 44-jointed, ♂ 49-jointed : 2nd discoidal areolet not closed on the inner side. By far the largest species. ♀ Black, pubescent ; abdomen, after the 1st segment, rufo-testaceous. Head broadly transverse, profoundly excavated behind ; face punctate, with a faint carina ; mandibles blackish ; ocelli red ; palpi testaceous. Antennæ as long as the body, obscurely reddish, with dark articulations. Thorax short, gibbous, narrower than the head ; mesothoracic furrows hardly inchoate ; on the mesonotum a longitudinal medial channel terminates in a deep fovea before the scutellum ; metathorax short,

obtuse, rugulose, almost truncated behind, with some yellowish pubescence, and a shortened medial carina. Wings subhyaline: squamulae brownish; nervures and stigma dark brown; the latter moderately incrassated in the middle, elongate, acuminate at both ends, emitting the radial nervure before one-third of its length; radial nervure thickened towards its base: radial areolet lanceolate, hardly attenuated and sinuated towards the extremity; recurrent nervure considerably rejected. Fore legs testaceous, the femora sometimes streaked with black above; legs of the middle pair testaceous, their femora more or less blackish towards the base; hind legs blackish, the tips of the trochanters and extreme base of the tibiae dull testaceous; all the coxæ blackish. Abdomen longer than the head and thorax, depressed, spathulate; 1st segment black, slender, as long as one-third of the abdomen, striolate, canaliculate in the middle, with prominent tubercles; the following segments testaceous, smooth, those near the extremity more or less darkened, or cinctured with fuscous, each segment traversed, near the hind border, by a line formed of minute impressed points. Terebra hardly exerted. ♂ similar; antennæ longer and more slender, blackish; 1st segment comparatively longer. Length,  $2\frac{1}{2}$  lines; exp., 5 lines.

This species exceeds in size the largest *Alysiæ*; it is rivalled, but not surpassed, by the following. Förster has made for its reception the genus *Phænolexis*. It occurs somewhat rarely in woods; my six specimens were taken in Wilts, Devon, and S. Wales; Nees captured it in the Sudetsche Gebirge. In Wesmael's unnamed collection are several Belgian specimens.

### 9. *Dacnusa egregia*, Marsh.

*D. egregia*, Marsh., *lib. cit*, p. 472, ♀.

♀ Abdomen oblong, not spathulate; 1st segment linear, about twice as long as the hind coxæ; antennæ 36-jointed; 2nd discoidal areolet closed at both ends. Black, pubescent; abdomen, after the 1st segment, brownish-red, more obscure towards the extremity. Head transverse, wider than the thorax, profoundly excavated behind; palpi testaceous. Antennæ as long as the body, slender, setiform, black, with the first 5 joints testaceous. Thorax gibbous, very pubescent; mesothoracic furrows complete but shallow, converging hindwards into a small round fovea, from which proceeds a shallow medial channel, not reaching the middle of the disk; metathorax short, rugulose, beset with whitish hairs, almost



truncate posteriorly, carinated at the base. Wings subhyaline; squamulæ brownish; nervures and stigma dark brown; the latter much attenuated, acuminate at both ends, emitting the radial nervure before one-third of its length; radial nervure thickened towards the base; radial areolet broader near the extremity than in *D. petiolata*; recurrent nervure interstitial. Legs testaceous; middle femora somewhat infuscated, the hind femora blackish; all the tarsi fuscous. Abdomen longer than the head and thorax, hardly wider behind, somewhat compressed; 1st segment much shorter than in *D. petiolata*, linear, finely punctate-rugulose; the tubercles subobsolete. Terebra briefly exerted, falciform. ♂ unknown. Length, 2 lines; exp.,  $3\frac{1}{2}$  lines.

Formerly I regarded this as the *Alysia navicularis*, Nees, but the description of that insect differs in too many particulars to justify the identification. Taken on the banks of the Usk, near Abergavenny, and unique in my collection.

#### 10. *Dacnusa temula*, Hal.

*D. temula*, Hal., Hym. Brit., ii., p. 14, ♂; Marsh., *lib. cit.*, p. 472, ♂.

Stigma thicker than the length of the 1st abscissa, dull ferruginous, more than four times as long as its breadth; recurrent nervure hardly rejected; 2nd discoidal areolet oblong. ♂ Black, shining, hardly pubescent; middle of the abdomen brownish testaceous. Mandibles and palpi ferruginous. Antennæ scarcely longer than the body, blackish, with the three basal joints ferruginous, except at their extremities, 25-jointed; all the joints cylindric, after the 2nd. Thorax oblong oval; furrows of the mesothorax abbreviated, humeral; an impressed line before the scutellum; metathorax finely scabrous; furrow of the mesopleuræ smooth. Wings hyaline; squamule pale testaceous; nervures stout, ferruginous; stigma large, linear-lanceolate, obtuse at the base, acuminate at the extremity, emitting the radial nervure before one-third of its length; radial areolet attenuated and sinuated before the apex; and nervure scarcely inchoate. Legs pale testaceous. Abdomen oval; 1st segment black, finely scabrous, twice as long as its breadth, somewhat contracted at the base, rectangular at the extremity; intermediate segments testaceous brown, the posterior infuscated. ♀ unknown. Length, 1- $1\frac{1}{2}$  lines.

Found in the woods of North Ireland; rare in England.

I have not seen this species, which seems closely allied to the following; the two together constitute Förster's genus *Pachysema*.

11. *Dacnusa macrospila*, Hal

*D. macrospila*, Hal., Hym. Brit., ii., p. 14, ♂; Marsh., *lib. cit.*, p. 473, ♂.

Stigma blackish, hardly three times as long as its breadth; recurrent nervure sensibly rejected; 2nd discoidal areolet, short, nearly quadrate. ♂ Very similar to *D. temula*, differing only by the nervulation and the darker colour of the legs. Black, shining; middle of the abdomen, and sometimes the 1st segment, testaceous brown. Base of the antennæ testaceous. Wings slightly infumated; squamulae dull, ferruginous; nervures stout, blackish; stigma large, thick, oval-lanceolate, bulging out beyond the margin of the wing, acuminate at the extremity, emitting the radial nervure before the middle. Legs testaceous. ♀ unknown. Length, 1 line.

Not known to me. England and Ireland; very rare.

12. *Dacnusa senilis*, Nees.

*Bassus senilis*, Nees, Mag. Ges. Berl., 1814, p. 209.

*Alysia senilis*, Nees, Mon., i., p. 260, ♂ ♀, and *A. rufipes*, Nees, *lib. cit.*, p. 261, ♂ ♀.

*D. senilis*, Hal., Hym. Brit., ii., p. 11; Marsh., *lib. cit.*, p. 474, ♂ ♀.

Metathorax and 1st abdominal segment densely covered with pale down, concealing the sculpture; hind femora blackish, or streaked with blackish above. Body black, with dense whitish pubescence. Head broader than the thorax; mandibles dull reddish; palpi ferruginous. ♀ antennæ longer than the body, blackish, with the 2nd joint rufescent, 32-36-jointed. Thorax subcylindric; mesothoracic furrows faintly impressed, extending over the disk, but not quite reaching the hind border; an oblong fovea before the scutellum; furrow of the mesopleuræ crenulate; metathorax excavated behind, rugulose, with a basal carina. Wings slightly infumated; squamulae brownish; nervures and stigma dark brown; the latter sublinear, not so thick as the length of the 1st abscissa, obtuse at the base, acuminate at the extremity,

emitting the radial nervure before one-fourth of its length; radial areolet hardly attenuated and sinuated before the apex; recurrent nervure interstitial. Fore legs ferruginous, their coxæ often infuscated; middle legs ferruginous, their coxæ, the base of the trochanters, the upper edge of the femora, and the tarsi, blackish; hind legs blackish, with the 2<sup>nd</sup> joint of the trochanters, and the tibiæ, ferruginous, these last dark at the tips, the femora sometimes reddish underneath. Abdomen longer and narrower than the thorax, convex, pointed at the extremity; 1st segment sublinear, carinated in the middle, rugulose, the tubercles hardly visible; 2nd and following segments very smooth, having each a series of minute impressed points along the hind border. Terebra briefly exerted, curved, with stout, compressed valves. ♂ antennæ longer, 37-40-jointed; abdomen depressed, somewhat spatulate. Length,  $1\frac{1}{2}$  lines; exp.,  $3\frac{1}{4}$  lines.

VAR. ♂ ♀ *Alysia rapipes*, Nees. Ferruginous parts of lighter tint; mandibles, base of antennæ, squamulæ, and legs, red; hind coxæ and tips of hind femora either red or blackish. Pubescence of the metathorax and first segment very fine. In one ♂ of my collection the 2<sup>nd</sup> segment is reddish at the base.

Not uncommon in marshes; a parasite, according to Rondani, of *Phytomyza albiceps*, Meigen. Besides England, it has been noticed in Germany, Italy, and Norway.

### 13. *Dacnusa misella*, Marsh.

*D. misella*, Marsh., *lib. cit.*, p. 475, ♂ ♀.

Metathorax less densely covered with down, often nearly bare; hind femora entirely pale, or rarely and faintly streaked with fuscous. The smallest species, very minute. Body short, black, shining, with pale pubescence; base of the 2<sup>nd</sup> abdominal segment somewhat reddish. Head large, transverse, wider than the thorax; mandibles 3-denticulate, red; palpi red. ♀ antennæ much longer than the body, black, 20-22-jointed; scape pale at the extremity. Thorax short, gibbous; mesonotum divided by an indistinct medial channel, sometimes effaced, which terminates in a fovea before the scutellum; pectus and pleuræ covered with whitish pubescence; furrow of the mesopleuræ smooth; metathorax very short, not shining, abruptly truncate behind, carinated at the base, furnished at each posterior angle with a tuft of whitish woolly hair. Wings subhyaline; squamulæ, nervures, and stigma pale

brownish ; the latter elongate, linear, acuminate externally, not so thick as the length of the 1st abscissa, emitting the radial nervure before one-fourth of its length ; radial areolet lanceolate, hardly sinuated before the extremity, remote from the tip of the wing ; recurrent nervure rejected ; 1st cubital areolet imperfectly separated from the 1st discoidal by reason of the dividing nervure being colourless ; anal nervure effaced. Legs testaceous, with fuscous coxæ. Abdomen not longer than the thorax, spathulate, somewhat convex, pointed at the extremity ; 1st segment twice as broad at the extremity as at the base, hardly pubescent, very finely aciculate, the tubercles scarcely visible ; the following segments smooth. Terebra concealed. ♂ similar ; antennæ 22-jointed ; abdomen depressed ; not so wide behind ; 1st segment sublinear. Length,  $\frac{3}{8}$  line ; exp.,  $1\frac{3}{4}$  lines.

Common in Cornwall ; obtained by sweeping hedges.

#### 14. *Dacnusa albipes*, Hal.

*D. albipes*, Hal., Hym. Brit., ii., p. 10 ; Marsh., *lib. cit.*, p. 477, ♂.

Radial areolet shorter than the præbrachial. Abdomen entirely black. ♂ black, shining, hardly pubescent. Mandibles ferruginous ; labrum and palpi yellow. Antennæ as long as the body, black, with joints 1-5 yellow, 21-25-jointed. Thorax subglobular ; a minute fovea before the scutellum ; furrow of the mesopleuræ rugose. Wings hyaline ; squamulæ yellow ; nervures pale ; stigma ochreous, linear, emitting the radial nervure from the base ; recurrent nervure rejected ; radial areolet shorter than the præbrachial, attenuated and sinuated before the extremity. Legs pale yellow, with only the last tarsal joint obscure. Abdomen depressed, spathulate ; 1st segment sublinear, punctate-rugulose. ♀ unknown. Length, 1 line.

Ireland, in woods, very rare. Dr. Schmiedeknecht states that he has found it in Germany.

#### 15. *Dacnusa lateralis*, Hal.

*D. lateralis*, Hal., Hym. Brit., ii., p. 9 ; Marsh., *lib. cit.*, p. 480, ♂ ♀.

Antennæ very long, one-half longer than the body ; radial nervure distinctly sinuated ; 1st abdominal segment three times as long as its breadth. Body black, shining, very finely pubescent ;

abdomen usually black (see varieties). ♀ antennæ slender, testaceous, blackish towards the extremity, about 40-jointed. Mesothoracic furrows inchoate; an oblong, linear fovea before the scutellum; metathorax rugose, very short, almost vertical from the base, carinated in the middle, beset with whitish pubescence. Wings slightly infumated; squamulæ testaceous; nervures and stigma pale brown; the latter linear, elongate, narrow, emitting the radial nervure from near the base; radial areolet large, lanceolate, sinuated before the extremity: recurrent nervure interstitial. Legs testaceous; hind coxæ blackish, their tibiæ infuscated at the apex, and the femora often streaked with blackish towards the extremity; tarsi obscure, the 4 anterior only at the tips. Abdomen depressed, suborbicular, almost broader than the thorax; 1st segment linear, punctate-rugulose, with medial tubercles. Terebra hardly exerted. ♂ similar; abdomen sublinear. Length  $1\frac{1}{3}$  lines; exp., 3 lines.

VAR. 1. Second abdominal segment dull testaceous at the base; base of antennæ, and legs, of a duller tint.

VAR. 2. ♂ ♀ Abdomen testaceous, infuscated at the sides; 1st segment black. This variety is perhaps peculiar to Ireland, since Haliday has described it as the ordinary form of the species; but in all the numerous specimens which I have seen the abdomen is black, having at most a slight reddish tint at the base of the 2nd segment.

This species may be known by the remarkable length of the antennæ. In other respects it much resembles *D. talaris* (sp. 3), and especially those specimens which have the 2nd segment free from rugosity; these, however, have both the antennæ and the 1st segment shorter. Common in England and Ireland; taken also by Walker in Finmark.

#### 16. *Dacnusa cincta*, Hal.

*D. cincta*, Hal., Hym. Brit., ii., p. 9; Marsh., *lib. cit.*, p. 481, ♀.

Antennæ a little longer than the body; radial nervure hardly sinuated; 1st abdominal segment twice as long as its width. ♀ black, shining, with very fine pubescence; 2nd and following segments testaceous, cinctured with a darker colour, after the 3rd; mandibles testaceous. Antennæ slender, 42-jointed, more or less testaceous at the base. Metathorax short, obtuse, punctate-rugulose. Wings hyaline with an obscure tinge; squamulæ

yellowish ; nervures and stigma dull ferruginous, the latter linear, emitting the radial nervure from near the base ; radial areolet very little narrowed and sinuated before the extremity. Legs testaceous with the last tarsal joint obscure. Abdomen rather longer than the head and thorax, and as wide as the latter ; 1st segment sub-linear, contracted at the extreme base, black, punctate-rugulose. *Terebra* subinserted. ♂ unknown. Length,  $1\frac{1}{3}$  lines.

I have not met with this species. The habitat is not mentioned ; probably Ireland.

### 17. *Dacnusa lepida*, Marsh.

*D. lepida*, Marsh., *lib. cit.*, p. 482, ♂.

Legs whitish-yellow, elongate ; squamulæ of the same colour ; wings very ample, obtuse and truncated at the extremity ; face whitish. ♂ black, shining, thinly beset with whitish hairs ; abdomen piceous brown. Head transverse, wider than the thorax, face and oral parts whitish-yellow. Antennæ much longer than the body, slender, dull testaceous, with the scape and the base of the flagellum of a brighter hue, 33-jointed. Mesothoracic furrows subobsolete ; a linear fovea before the scutellum ; metathorax almost smooth, rather shining, without a basal carina. Wings hyaline ; nervures and stigma brown, the latter moderately long, lanceolate, obtuse at the base, acuminate at the extremity, emitting the radial nervure before one-fourth of its length : radial areolet distinctly attenuated and sinuated towards the extremity, longer than the præbrachial areolet ; recurrent nervure interstitial. Legs very pale, including the coxæ ; 4 posterior tarsi, and tips of the hind tibiæ slightly infuscated ; a small black spot at the base of the hind coxæ, above. First abdominal segment short, barely twice as long as its width, not much narrowed at the base, canalulate in the middle throughout its length, margined, somewhat shining, without rugosity, its tubercles salient ; the following segments form a claviform oval, shorter than the thorax. ♀ unknown. Length, nearly 1 line ; exp.,  $2\frac{1}{2}$  lines.

The only specimen was taken at Bishop's Teignton, Devon.

### 18. *Dacnusa ovalis*, Marsh.

*D. ovalis*, Marsh., *lib. cit.*, p. 483, ♂ ♀.

Legs dull testaceous, shorter than in species 17 ; squamulæ of the same colour ; wings less ample, regularly rounded at the extremity ; face black. Body black, shining ; metathorax and 1st

segment covered with fine down; 2nd segment somewhat reddish at the base. Head transverse, wider than the thorax; mandibles rufous, tridenticulate; palpi dusky. ♀ Antennæ longer than the body, blackish, with two or three of the basal joints more or less testaceous, 31-jointed (in 4 examples). Thorax short, gibbous; mesothoracic furrows almost obsolete; a rather large oval fovea before the scutellum; metathorax short, not shining, finely rugose, vertically truncate behind, the descending portion bounded by a transverse carina. Wings subhyaline: nervures and stigma fuscous, the latter elongate, linear-lanceolate, obtuse at the base, acuminate at the extremity, emitting the radial nervure from near the base; radial areolet large, much dilated in the middle, sinuated and gradually attenuated towards the extremity, longer than the præbrachial; recurrent nervure interstitial. Last joint of the tarsi infuscated. First abdominal segment short, twice as long as its apical width, hardly narrowed at the base, not shining, finely aciculate, with medial tubercles, not salient; the following segments form a pointed oval, as wide and as long as the thorax, black, more or less reddish at the base. Terebra hardly exerted. ♂ similar; antennæ 31-jointed; legs of a more dingy hue; abdomen obtuse at the extremity, narrower than the thorax. Length, hardly 1 line; exp.,  $2\frac{1}{2}$  lines.

VAR. ♀ Abdomen, after the 1st segment, dull, testaceous, infuscated at the sides.

Found at Nunton, Wilts, 3 ♀, 1 ♂; the var. in Cornwall.

### 19. *Dacnusa leptogaster*, Hal.

*D. leptogaster*, Hal., Hym. Brit., ii, p. 10; Marsh., *lib. cit.*, p. 484, ♂ ♀.

Squamulæ black. Body black, pubescent; abdomen linear, not so wide as the thorax; 2nd segment reddish at the base. Resembles *D. petiolata* (sp. 8), but is much smaller, and the head and abdomen are relatively narrower. ♀ Antennæ as long as the body, 26-30-jointed. Thorax oblong-oval; a punctiform fovea before the scutellum; metathorax short, pubescent, slightly excavated behind. Wings hyaline, with a faint dusky tinge; nervures and stigma fuscous, the latter linear, rather stout, emitting the radial nervure before one-quarter of its length; radial areolet short, hardly sinuated and narrowed before the extremity. Legs testaceous; the 4 anterior femora marked above with a blackish streak; hind tibiæ blackish at the apex. Abdomen somewhat compressed,

truncate at the extremity; 1st segment slender, linear, almost as long as the following segments united, rugose, reticulated; tubercles situated before the middle, subobsolete: the rest of the abdomen sometimes wholly reddish. Terebra subexserted. ♂ Antennæ rather longer than the body, 33-jointed, and upwards; abdomen linear, not compressed. Length,  $1\frac{1}{3}$  lines.

England and Ireland; somewhat rare.

## 20. *Dacnusa postica*, Hal.

*D. postica*, Hal., Hym. Brit., ii., p. 11; Marsh., *lib. cit.*, p. 485, ♂.

Squamulæ reddish. Abdomen testaceous with the 1st segment black. Similar to *D. senilis* (sp. 12), but the 1st segment is more slender, and its pubescence not so dense. ♂ Black, pubescent; head large, wider than the thorax; mandibles red, palpi paler. Antennæ testaceous at the base. Thorax oblong; metathorax pubescent, slightly excavated behind. Wings hyaline, with an obscure tinge; nervures and stigma fuscous, the former (according to Haliday) arranged as in *D. senilis*. Legs testaceous. Abdomen narrower than the thorax; 1st segment slender, linear, punctate-rugulose, subcarinate; tubercles obtuse, situated somewhat before the middle. ♀ unknown; but compare *D. gracilis* (sp. 22). Length,  $1\frac{3}{4}$  lines.

The single example, taken long ago by Walker, is too succinctly described by Haliday. He differentiates it from *D. cincta* (sp. 16) as being of a more elongate form, with a larger head, the 1st segment more slender, and the radial areolet smaller.

Taken once in England.

## 21. *Dacnusa diremta*, Hal.

*D. diremta*, Hal., Hym. Brit., ii., p. 12; Marsh., *lib. cit.*, p. 485, ♂ ♀.

Head subcubic, its length and breadth being about equal, not dilated behind the eyes; nervures and stigma pale yellow. Black, shining, with scattered pubescence. The form of the head, peculiar to this species, is easy to recognise; the head also is as wide as the thorax, and less flattened than usual; mandibles and



palpi ferruginous. ♀ Antennæ longer than the body, slender, blackish, with the base ferruginous, 32-jointed, and upwards. Thorax subcylindric; mesothoracic furrows united, not far from the fore margin, in a channel which terminates in a deep round fovea before the scutellum; metathorax downy, punctate-rugulose, obtuse behind, canaliculate in the middle. Wings hyaline; squamulæ pale yellow; stigma linear, acuminate at the extremity, emitting the radial nervure from near the base; radial areolet lanceolate, hardly sinuated, longer than the præbrachial; recurrent nervure interstitial. Legs entirely ferruginous. Abdomen narrower than the thorax, somewhat compressed posteriorly; 2nd segment ferruginous, the rest blackish. Terebra subexserted. ♂ Antennæ twice as long as the body, about 32-jointed; 1st abdominal segment twice as long as its apical width, hardly contracted at the base, canaliculate in the middle, very finely aciculate, with medial tubercles not salient; abdomen narrowly oblong, not compressed; 2nd and 3rd segments testaceous. Length,  $\frac{1}{2}$  line; exp.,  $1\frac{1}{2}$  lines.

VAR. Second abdominal segment piceous.

Found in marshy places; England and Ireland; Germany; Russia, according to Kawall. I possess one ♂, not in good condition.

## 22. *Dacnusa gracilis*, Nees.

*Alysia gracilis*, Nees, Mon., p. 257, ♂ ♀.

*D. gracilis*, Marsh., lib. cit., p. 487, ♂ ♀.

Head transverse, dilated behind the eyes; nervures and stigma fuscous. Black, shining; middle of the abdomen ferruginous. ♀ Head large; oral parts rufous. Antennæ somewhat longer than the body, testaceous as far as the middle, thence gradually darkened to the apex, 31-jointed. Mesothoracic furrows continued to the oblong fovea before the scutellum; metathorax carinate in the middle, pubescent posteriorly, hardly rugulose, truncate behind. Wings hyaline with an obscure tinge; nervures and stigma pale brown, the latter linear-lanceolate, emitting the radial nervure at one-third of its length; radial nervure hardly sinuated; recurrent nervure rejected. Legs rufous, the coxæ included; last joint of the tarsi infuscated. Abdomen longer than the head and thorax, narrow, strongly compressed towards the apex; 1st segment almost linear, striolate, carinate in the middle, with subobsolete tubercles; 2nd and part of the 3rd, testaceous or rufous; the rest blackish,

except the last and the hypopygium, which are rufous. Terebra exerted, curved upwards. ♂ similar, according to Nees, but not described. Length,  $1\frac{1}{2}$  lines; exp.,  $3\frac{1}{4}$  lines.

I have taken two females of this species, one in England, the other in France, at Nantua; they agree in all respects except size, the English example being much the smaller. For a long time I supposed them to be *D. postica*, Hal. (sp. 20), the ♀ of which is undiscovered; but the identification is too uncertain to be adopted. Taken by Manger in the Sudetsche Gebirge.

### 23. *Dacnusa aphanta*, Marsh.

*D. aphanta*, Marsh., *lib. cit.*, p. 488, ♀.

First cubital areolet more or less confounded with the 1st discoidal. Black; abdomen piceous; body not very pubescent. Head wider than the thorax; oral parts pale. ♀ Antennæ twice as long as the body, blackish, with the scape partly testaceous, 25-jointed. Mesothoracic furrows obsolete; a linear fovea before the scutellum; metathorax sloping from the base, not shining, bisected by a transverse carina. Wings hyaline; squamulæ pale yellow; nervures and stigma pale brownish; the latter elongate, stout, abruptly acuminate at the extremity, emitting the radial nervure before one-fourth of its length; radial areolet large, much longer than the præbrachial, dilated and sinuated before the extremity; the nervure dividing the 1st cubital from the 1st discoidal areolet widely interrupted, subobsolete; recurrent nervure interstitial. Legs very pale testaceous, the coxæ included; tips of the hind tibiæ and last joint of all the tarsi, infuscated. Abdomen claviform, as long as the thorax, somewhat compressed towards the apex, which is vertically truncate; 1st segment linear, black,  $2\frac{1}{2}$  times as long as its width, hardly aciculate, not shining; the tubercles not salient; the following segments piceous. Terebra briefly exerted. ♂ doubtful on account of the antennæ, which have only 24 joints, and are somewhat shorter than those of the ♀. Otherwise it agrees well with the description; the 1st cubital is completely confused with the 1st discoidal; this character may be of little value, but I could not find any other by which to fix the place of a species so little distinguished. Length, 3 lines; exp., 2 lines.

Taken in S. Wales and near Plymouth. Förster has made a genus *Aphanta*, possibly intended for this insect.

24. *Dacnusa stramineipes*, Hal.

*D. stramineipes*, Hal., Hym. Brit., ii., p. 16; Marsh.,  
*lib. cit.*, p. 498, ♂ ♀.

Second discoidal areolet not closed on the outer side; antennæ much longer than the body, 23-31-jointed; terebra as long as one-fourth, or even three-fourths, of the abdomen. Blackish-brown, or piceous, pubescent; the apex of the abdomen pale. Head not wider than the thorax; cheeks pale piceous; mandibles rufous; palpi pale. ♂ ♀ Antennæ very slender, blackish, more or less testaceous at the base. Mesonotum flattened posteriorly, having in front of the scutellum a linear fovea of variable length, sometimes short and oval; the ordinary furrows effaced; furrow of the mesopleuræ wanting; metathorax pilose, short, not shining, punctulate, without a medial carina. Wings ample, very long, hyaline; squamulæ testaceous; nervures and stigma testaceous in the ♀, black in the ♂; stigma linear, very elongate, acuminate at the apex; radial areolet very long, longer than the præbrachial, and approaching nearer to the tip of the wing than in the next species, somewhat dilated and sinuated in the middle, not much attenuated towards the apex, almost cultriform; radial nervure originating near the base of the stigma; recurrent nervure rejected. Legs straw-coloured; last joint of the tarsi obscure. Abdomen sessile, oboval, somewhat depressed; 1st segment not longer than its apical width, somewhat narrowed at the base, aciculate, downy, not shining; the tubercles not apparent. Length, 1½ lines; exp., 3¾ lines.

This species constitutes the genus *Tanystropha*, Förster. It is confounded by transitional links with *D. areolaris* (sp. 25); it is found with that species, but less abundantly; as it differs in no important particulars except superior development, it may be reasonably suspected of being only a well nourished variety. England and Ireland; common.

25. *Dacnusa areolaris*, Nees. (Pl. I., fig. 3.)

*Bracon areolaris*, Nees, Mag. Ges. Berl., 1811, p. 20,  
pl. i., fig. 5.

*Alysia areolaris*, Nees, Mon., i., 262, ♂ ♀.

*D. areolaris*, Hal., Hym. Brit., ii., p. 15, ♂ ♀; Marsh.,  
*lib. cit.*, p. 491.

*Alysia pubescens*, Curt. Brit. Ent., 141.

Stigma elongate, emitting the radial nervure not far from its base, which is somewhat attenuated; abdomen entirely black or

piceous; terebra only slightly exerted. Body black, with pale pubescence; palpi dusky; mandibles rufous. ♂♀ Antennæ a little longer than the body, about 25-jointed. Mesonotum somewhat flattened, impressed with a medial faint longitudinal channel not reaching the fore border; furrow of the mesopleuræ wanting; metathorax densely pubescent, short, rugulose. Wings hyaline; squamulæ brownish; nervures and stigma pale in the ♀, black in the ♂; stigma much attenuated, extending ever two-thirds of the radial areolet; this latter is longer than the præbrachial areolet, and a trifle more remote from the tip of the wing than in sp. 24; radial nervure rather stout, curved and sinuated before the extremity; recurrent nervure interstitial. Legs rufous; coxæ, base of the trochanters, upper edge of the 4 posterior femora, tips of the hind tibiæ, and the hind tarsi, often infuscated. Abdomen like that of sp. 24, but not pale at the apex. Terebra concealed or slightly exerted. Length,  $\frac{3}{4}$ -1 line; exp.,  $2\frac{1}{4}$ -3 lines.

Variable, not only as to size, but also in the colour of the palpi, mandibles, and legs, which are more or less dark in the smaller examples, more clearly rufous in the larger. Many seem to be intermediate between this species and the preceding, so that it is hard to say, among the great number I possess, to which they ought to be referred. It may be also remarked that the radial areolet varies in length, and the stigma exhibits different degrees of attenuation, but the general resemblance of all these equally abundant forms is too intimate to admit a doubt of their specific identity. They are probably widely dispersed in cold and temperate regions, where they show themselves in the earliest days of spring. Förster has made of them another genus, *Rhizarcha*.

#### 26. *Dacnusa clandestina*, Hal.

*D. clandestina*, Hal., Hym. Brit., ii., p. 14; Marsh., *lib. cit.*, p. 492, ♀.

Stigma somewhat shorter, emitting the radial nervure before one-fourth of its length, and dilated at the anastomosis; abdomen blackish, the segments cinctured with pale yellowish; terebra half as long as the abdomen. ♀ Black, pubescent; head large, wider than the thorax, piceous with paler cheeks; mandibles ferruginous, dark at the points; palpi elongate, pale testaceous. Thorax oval; mesonotum impressed with a longitudinal smooth channel not reaching the fore border; mesopleuræ without a furrow; meta-

thorax short, obtuse. Wings hyaline; squamulæ and stigma pale ochreous; radial areolet slightly dilated and sinuated in the middle, somewhat acuminate at the extremity, shorter than spp. 24, 25; recurrent nervure almost interstitial. Legs pale testaceous, the tips of the tibiæ and of the tarsi infuscated. Abdomen subsessile, oval, convex; 1st segment obconic, densely pubescent like the metathorax, and finely rugulose; segments 2-5 cinctured with pale yellowish before the posterior margin; 6-7 ochreous. Described by Haliday from a single specimen. ♂ unknown. Length,  $1\frac{1}{2}$  lines.

Taken in Ireland.

27. *Dacnusa aquilegiæ*, Marsh.

*D. aquilegiæ*, Marsh., *lib. cit.*, p. 493, ♀.

Stigma as long as the præbrachial areolet; radial nervure bent in the middle, forming almost a blunted angle, indicating thus a 3rd abscissa, which proceeds almost in a straight line to the metacarp, and terminates in an acute angle at a considerable distance from the tip of the wing. This conformation is found also in certain species of *Opius*, as *O. ochrogaster*, Wesm., and *O. nitidulator*, Nees (see Tr. Ent. Soc. Lond., 1891, pp. 32, 38). ♀ Black, scarcely pubescent; abdomen piccous, with the 1st segment testaceous. Head much wider than long; mandibles rufous; palpi paler. Antennæ slender, longer than the body, 28-jointed, black, with the two first joints reddish. An impressed line on the mesonotum before the scutellum; metathorax short, not shining, pubescent, with a smooth space at the middle of the base. Wings hyaline; squamulæ testaceous; nervures and stigma fuscous, the latter stout, extending to two-thirds of the short radial areolet, emitting the radial nervure from near its base; the dividing nervure between the 1st cubital and 1st discoidal areolets colourless, but still traceable; recurrent nervure directed towards the inner lower angle of the 2nd cubital areolet. Legs rufotestaceous, the coxæ included; last joint of the tarsi infuscated. Abdomen as long as the head and thorax, subsessile; 1st segment twice as long as its apical width, not much narrowed at the base, finely striolate and margined, with salient tubercles; the following segments smooth, forming a claviform mass as wide as the thorax. Terebra concealed. ♂ unknown. Length, 1 line; exp.,  $2\frac{1}{2}$  lines.

The only example was bred from an unknown dipterous pupa found on the columbine, *Aquilegia vulgaris*, by Mr. Billups.

28. *Dacnusa abdita*, Hal. (Pl. I., fig. 4.)

*D. abdita*, Hal., Hym. Brit., ii., p. 13; Marsh., *lib. cit.*, p. 494, ♂ ♀.

Mesopleuræ without a distinct furrow. ♀ Black, shining, with scattered pubescence; abdomen in general entirely black, sometimes the segments cinctured with testaceous along the hind margin. Head short, transverse, wider than the thorax; clypeus brown; mandibles rufous; palpi whitish. Antennæ longer than the body, black, with the scape testaceous, 31-35-jointed. Thorax short, gibbous, oval; on the mesonotum before the scutellum is an oval fovea more or less distinct, which is prolonged into a channel on the disk; metathorax short, rugose, truncate posteriorly. Wings ample, hyaline, minutely hairy; squamulæ testaceous; nervures and stigma fuscous, the latter stout, elongate, linear-lanceolate, sometimes attenuated at the base, close to which it emits the radial nervure; radial areolet large, much longer than the præbrachial, strongly dilated and sinuated before the extremity; recurrent nervure directed towards the inner lower angle of the 2nd cubital areolet. Legs testaceous; hind tarsi and tips of the hind tibiæ infuscated, tarsi shorter than the tibiæ. Abdomen convex, sub-orbicular; 1st segment sublinear, somewhat contracted before the tubercles, which are conspicuous and situated in the middle; the following segments very smooth, ciliated on the margins; belly testaceous. Terebra hardly exerted. ♂ similar, but more slender; antennæ (in 3 examples) 32-jointed; abdomen depressed, oblong, with parallel sides; posterior segments obscurely bordered with testaceous. Length,  $1\frac{1}{4}$  lines; exp., 3 lines.

This species may be known by the unusual direction of the recurrent nervure, and the exceptional shortness of the hind tarsi; otherwise it is very like *D. talaris* (sp. 3) and *D. lateralis* (sp. 15); in *D. talaris* the hind tarsi are as long as their tibiæ; in *D. lateralis* the hind tarsi are short, but the antennæ very much longer. Found in England and Ireland; a supposed parasite of some *Phytomyza*, whose larva lives in the parenchyma of leaves.

29. *Dacnusa gilvipes*, Hal.

*D. gilvipes*, Hal., Hym. Brit., ii., p. 12; Marsh., *lib. cit.*, p. 495, ♂ ♀.

Mesopleuræ with a crenulate furrow. Antennæ 25-29-jointed. ♀ Black, shining, finely pubescent; mandibles, clypeus, and palpi

yellow. Antennæ as long as the body, blackish, with the first 4 or 5 joints yellow, the 3rd somewhat elongate. Thorax oval, convex; mesothoracic furrows scarcely inchoate, punctulate; a punctiform fovea before the scutellum; metathorax very short, obtuse, punctate-rugulose. Wings hyaline; squamulæ yellow; nervures and stigma testaceous, the latter very narrow, emitting the radial nervure from its attenuated base; the nervulation (according to Haliday) resembles that of *D. areolaris* (sp. 25), but the recurrent nervure is interstitial, and the 1st abscissa longer. Legs slender, yellow. Abdomen subpetiolate, spathulate, somewhat less wide than the thorax, slightly compressed at the apex; 1st segment linear, punctate-rugulose, very little contracted at the base, with medial tubercles. Terebra as long as one-fourth of the abdomen, its valves slender. ♂ similar, but with stouter legs. Length, 1-1½ lines.

VAR. 1. ♂ Abdominal segments, after the 1st, fuscous; an obscure testaceous patch at the base of the 2nd.

VAR. 2. ♂ Hind tarsi and tips of their tibiæ infuscated.

I have not seen this species, which, according to Haliday, resembles *D. albipes* (sp. 14), differing only in having the thorax nearly glabrous, the radial areolet and the stigma shorter, and the recurrent nervure interstitial. Förster has made for it the genus *Mesora*. Found in England and Ireland, but very rare.

#### V. GYROCAMPA, Förster.

Förster, Verh. Pr. Rheinl., 1862, p. 276.

Palpi elongate, the maxillary 6-, the labial 3- or 4-jointed. Head transverse; cheeks somewhat dilated; eyes rather small, glabrous. Thorax smooth; mesonotum canaliculate in the middle, the channel developing into a fovea before the scutellum; mesothoracic furrows incomplete, directed at first across the disk, but soon forming almost a right angle, marked by a punctiform impression, and then suddenly effaced; furrow of the mesopleuræ smooth; metathorax pubescent. Wings narrower than in *Dacnusa*; 2nd abscissa forming a regular parabolic curve, not at all sinuated; recurrent nervure rejected; stigma linear, elongate, sometimes very much attenuated and indeterminate, emitting the radial nervure at one-fourth or one-third of its length; radial areolet remote from the tip of the wing; 2nd discoidal completely closed; radial nervure of the hind wings colourless or effaced. Abdomen spathulate, pointed at the apex in the ♀; 2nd and following sutures very indistinct; 1st

segment oblong, a little narrowed at the base, striolate, pubescent, with more or less visible tubercles. Terebra briefly exerted, with broad, flattened valves.

These insects are distinguished from *Dacnusa* by a certain facies, which is due to the form of the head and abdomen, as well as to the neuration. Förster has made of them two genera, *Gyrocampa* and *Ametria*, the latter of which is distinguished by a longer radial areolet, and the number of joints of the labial palpi. The same author evidently intended to separate *Gyrocampa* from *Dacnusa* by the radial nervure, which is regularly curved in the former; but the typographical errors in his synopsis, p. 276 (where No. 20 needs correction), are misleading to the reader. It may also be remarked that some species of *Dacnusa*, as *D. semirugosa* (sp. 4), present a radial nervure not more sinuated than in *Gyrocampa*.

The parasitism of the species of *Gyrocampa* is unknown, but they are always found in marshy places, especially on plants of the family *Lemnaceæ*. The dense pubescence or down, covering the region of the principal spiracles, viz., the metathorax and the 1st abdominal segment, is probably for the protection of the breathing-orifices from water, and indicates, as in many other insects, the habit of living in wet places.

#### TABLE OF SPECIES.

- |     |    |   |                                |
|-----|----|---|--------------------------------|
| (4) | 1. | Labial palpi 4-jointed; stigma attenuated, but not quite obsolete, emitting the radial nervure at one-fourth of its length.               |                                |
| (3) | 2. | Second segment striolate at the base, length nearly 2 lines   | ... 2. <i>foveola</i> , Hal.   |
| (2) | 3. | Second segment entirely smooth; length 1 line or very little more   | ... 1. <i>affinis</i> , Nees.  |
| (1) | 4. | Labial palpi 3-jointed; stigma obsolete, or nearly so, not thicker than the costa, emitting the radial nervure at one-third of its length | ... 3. <i>uliginosa</i> , Hal. |

#### 1. *Gyrocampa affinis*, Nees.

*Bracon longicornis*, varr.  $\alpha, \beta$ , Nees, Mag. Ges. Berl., 1811, p. 20.

*Bassus affinis*, Nees, *lib. cit.*, 1814, p. 209.

*Alysia affinis*, Nees, Mon., i., p. 261, ♂ ♀.

*Dacnusa affinis*, Hal., Hym. Brit., ii., p. 16, ♂ ♀.

*G. affinis*, Marsh., Species des Hym. d'Eur. et d'Alg. Bracon., vol. ii., p. 503, ♂ ♀.



Labial palpi 4-jointed; stigma elongate, attenuated, emitting the radial nervure at one-fourth of its length, which fourth is about equal in length to the 1st abscissa. Second segment of the abdomen entirely smooth. ♀ Black, shining, pubescent; mandibles and palpi rufous. Antennæ somewhat longer than the body, 24-jointed, the first 3 or 4 joints rufous. Prothorax transversely wrinkled; mesonotum traversed by an impressed line issuing in a rounded fovea before the scutellum; metathorax not shining, beset with whitish hairs, truncate posteriorly. Wings hyaline; squamulæ brown; nervures and stigma reddish-brown, sometimes very pale. Legs rufotestaceous; last joint of the tarsi elongate, incrassated, with minute claws. Abdomen spatulate, as long as the thorax; 1st segment finely striolate, pubescent, carinate in the middle, twice as wide at the extremity as at the base, with inconspicuous tubercles. Terebra hardly exerted. ♂ similar; antennæ longer, 28-33-jointed; 1st segment almost linear; 2nd and following narrower than in the ♀, forming together an elongate oval. Length, 1-1½ lines; exp., 2¼-3 lines.

VAR. ♂ ♀ Form more slender; head not so much flattened; antennæ longer, 33-jointed; stigma more attenuated, almost obsolete. Haliday.

Common in Europe, upon duck-weed and other aquatic plants.

## 2. *Gyrocampa foveola*, Hal.

*Dacnusa foveola*, Hal., Hym. Brit., ii., p. 16, ♀.

*G. foveola*, Marsh., lib. cit., p. 504, ♂ ♀.

Labial palpi, and stigma, as in the preceding. Second segment of the abdomen striolate at the extreme base. The largest species. ♀ Black shining. Antennæ 30-35-jointed, the two basal joints more or less testaceous. Medial furrow of the mesonotum broad and deeply sunk; metathorax densely pubescent. Wings slightly infumated; nervures and stigma fuscous. First abdominal segment with salient tubercles, striolate, with a small medial space triangular and smooth; apex of the abdomen more acuminate than in *G. affinis*; terebra longer, its valves incrassated and flattened. The other characters are the same as those of *G. affinis*. ♂ similar; 2nd abdominal segment reddish towards the base; one ♂ in my collection has 30-jointed antennæ, like the ♀. Length, 1¾ lines; exp., 3¾ lines.

Found in England and Ireland, but much more rarely than the other species

3. *Gyrocampa uliginosa*, Hal. (Pl. I., fig. 5.)

*Dacnusa uliginosa*, Hal., Hym. Brit., ii., p. 17, ♂ ♀.  
*G. uliginosa*, Marsh., *lib. cit.*, p. 502, ♂ ♀.

Labial palpi 3-jointed; stigma more elongate and attenuated, almost indistinguishable from the costa, emitting the radial nervure at one-third of its length, which third is longer than the 1st abscissa. ♀ Black, shining; head and thorax pubescent, and of equal width: palpi and mandibles rufous. Antennæ somewhat longer than the body, 24-jointed, the 2nd joint testaceous. An impressed line on the mesonotum, terminating in a rounded fovea before the scutellum; furrow of the mesopleuræ fine and smooth; metathorax beset with whitish hairs. Wings hyaline; squamulæ brown; nervures and stigma ferruginous brown; the portion of the stigma preceding the 1st abscissa being longer than this latter, it results that the parastigma is thrown back towards the base of the wing, and the 1st cubital areolet is angularly prolonged in the same direction; radial areolet longer and narrower than in the other species; hind wings narrow. Legs rufous: tarsi and tips of the femora, infuscated. Abdomen convex, spatulate, as wide as the thorax and a little longer, glabrous, very shining: 1st segment twice as wide at the extremity as at the base, striolate, finely margined, with scarcely visible tubercles; 2nd sometimes faintly striolate at the extreme base. Terebra hardly exerted. ♂ similar; antennæ 28-jointed: abdomen elongate-oval, depressed; 2nd segment rufopiceous towards the base, Length, 1 line; exp.,  $2\frac{1}{4}$  lines.

Found all over the British Islands, and in Holland; common amongst aquatic plants. It constitutes the genus *Ametria*, Förster.

## VI. CHOREBUS, Hal.

Hal., Hym. Brit., ii., p. 17 (1839).

Maxillary palpi 6-jointed, the 4th joint longer than the 5th, the 6th shorter, suboval; labial palpi 3-jointed, the last joint enlarged, oval. Head transverse; eyes pilose; mandibles subcompressed, prismatic, 3-denticulate, the middle tooth the longest. Thorax finely and densely punctulate, often not shining, rugose at the sides and beneath; mesosternum smooth; furrow of the mesopleuræ rugose; mesothoracic furrows incomplete, directed at first across the disk, but soon turning off at a right angle marked by a punctiform

impression, and then suddenly effaced; metathorax rugose, reticulate. Stigma either linear, elongate, attenuated, emitting the radial nervure before one-third of its length, or else forming an elongate triangle, and emitting the radial nervure just before the middle; radial nervure describing a regular curve, without situation; radial areolet narrow, elongate, remote from the tip of the wing; recurrent nervure more or less rejected, when it is much thrown back, the first cubital areolet becomes a hexagon; 2nd discoidal areolet complete. Abdomen subsessile; 1st segment striolate, the rest smooth, minutely ciliate along the hind border. Terebra very short.

Haliday was acquainted with three species, to which I am now enabled to add a fourth, distinguished by its neururation. They are closely allied to the preceding and the following genus, and are found in similar situations, such as the banks of rivers and ponds, or among the rejectamenta of the sea-beach. Their earlier states are not known.

## TABLE OF SPECIES.

- |     |    |   |                                   |
|-----|----|---|-----------------------------------|
| (4) | 1. | Recurrent nervure rejected as far as the middle, or one-third, of the 1st cubital areolet, thus forming a 6th side of that areolet.   |                                   |
| (3) | 2. | Stigma attenuated, sublinear, not so thick as the length of the 1st abscissa; emitting the radial nervure before one-fourth of its length; legs blackish                              | ... 1. <i>neroidum</i> , Hal.     |
| (2) | 3. | Stigma forming an elongate scalene triangle; emitting the radial nervure from near the middle, where it is thicker than the length of the 1st abscissa; legs in great part testaceous | ... 2. <i>limoniadum</i> , Marsh. |
| (1) | 4. | Recurrent nervure not so far rejected.  |                                   |
| (6) | 5. | Antennæ of the ♀ one-half longer than the head and thorax; abdomen not compressed (♂ unknown)   | ... 3. <i>lymphatus</i> , Hal.    |
| (5) | 6. | Antennæ of the ♀ as long as the head and thorax; abdomen, after the 3rd segment, strongly compressed  | ... 4. <i>naïadum</i> , Hal.      |

1. *Chorebus neroidum*, Hal.

*C. neroidum*, Hal., Hym. Brit., ii., p. 18; Marsh., *lib. cit.*, p. 507, ♂ ♀.

♀ Black; head transverse, somewhat less wide than the thorax, shining, densely pubescent; vertex faintly canaliculate; mandibles piceous; palpi pale, infuscated at both ends. Antennæ 18-jointed, hardly as long as the head and thorax. Thorax densely pubescent; mesothoracic furrows humeral, effaced posteriorly, between them on the fore margin is a short smooth stria; metathorax short,

subtruncate. Wings hyaline; squamulæ black; nervures and stigma fuscous; radial areolet lanceolate, very narrow; 1st cubital areolet hexagonal; præbrachial areolet of the hind wings rather short. Legs robust, blackish, with the extremities of the trochanters rufous. Abdomen as broad as the thorax, and somewhat longer, lanceolate, depressed; 1st segment obconic, rather longer than its apical width, without visible tubercles, obsoletely rugulose, margined, often marked with a medial impression; 2nd and 3rd, taken together, subrectangular, one-half longer than the 1st; the rest, taken together, scarcely half as long as the 2nd and 3rd. Terebra hardly exerted. ♂ similar; antennæ almost one-half longer than the head and thorax, 22-jointed; abdomen scarcely narrower than the thorax; segments 2-3 as long as all the following united. Length,  $1\frac{1}{4}$  lines; exp.,  $2\frac{1}{4}$  lines.

It has been taken in England, Ireland, and Holland, but rarely; it crawls slowly amongst seaweed at the mouths of rivers, and on the coast. Mr. Billups has captured it at Oxshott.

## 2. *Chorebus limoniadum*, Marsh.

*C. limoniadum*, Marsh., *lib. cit.*, p. 507, ♀.

♀ Black; head transverse, as wide as the thorax, shining pubescent; vertex faintly canaliculate; mandibles and palpi testaceous. Antennæ mutilated, but 16 joints remain. Mesothorax as in the last species; metathorax punctate-rugose, traversed by several raised lines, irregular, longitudinal, of which the two medial enclose an oval space. Wings hyaline; squamulæ, nervures, and stigma, rufopiceous; radial areolet lanceolate, broader than in *C. nereidum*; recurrent nervure rejected to one-third of the length of the inner lower side of the 1st cubital areolet, which is thus made hexagonal; præbrachial areolet of the hind wings shorter than in *C. nereidum*. Legs testaceous, pubescent; 4 anterior coxæ, all the femora, tibiæ, and tarsi infuscated at the apex; hind coxæ black. Abdomen elongate-oval, depressed, subpetiolate; 1st segment striolate, nearly linear, much narrower than the metathorax, margined from the base to the tubercles, which are acute and very salient; the rest of the segments smooth. Terebra hardly exerted. ♂ unknown. Length,  $1\frac{1}{4}$  lines; exp.,  $2\frac{1}{2}$  lines.

The shape of the stigma will at once distinguish this species, without regard to smaller differences. I captured the only specimen known on the banks of a rivulet in Devonshire, at some distance from the sea.

3. *Chorebus lymphatus*, Hal.

*C. lymphatus*, Hal., Hym. Brit., ii., p. 19; Marsh., *lib. cit.*, p. 508, ♀.

♀ More slender than *C. nereïdum* and *C. naiadum*. Black; head transverse, subcubic, wider than the thorax, shining; eyes beset with scattered hairs; mandibles and palpi ferruginous. Antennæ 22-jointed, the 2nd joint rufescent. Thorax finely punctulate, pubescent; mesonotum having an impressed line in front, and a fovea before the scutellum; metathorax obtuse. Wings hyaline; squamulæ yellowish; nervures and stigma dull ferruginous, the latter still more attenuated than in *C. nereïdum*; radial areolet more elongate. Legs ferruginous, the tips of the tarsi infuscated. Abdomen as in *C. nereïdum*, but less narrowed posteriorly; 1st segment almost twice as long as wide, its tubercles situated before the middle. Terebra subexserted. Length,  $1\frac{1}{2}$  lines.

Once captured by Haliday in North Ireland, in a grassy ditch.

4. *Chorebus naiadum*, Hal.

*C. naiadum*, Hal., Hym. Brit., ii., p. 18; Marsh., *lib. cit.*, p. 509, ♂ ♀.

♀ Black: head transverse, a little narrower than the thorax, shining, densely pubescent; vertex faintly canaliculate; mandibles dusky; palpi pale. Antennæ 16-jointed, more slender than in *C. nereïdum*. Thorax densely pubescent; mesonotum canaliculate in the middle, sometimes studded with large punctures; metathorax very short, gibbous at the sides, truncate posteriorly. Wings hyaline; squamulæ black; stigma and nervures dull ferruginous; the former linear-lanceolate, emitting the radial nervure before one-third of its length; recurrent nervure moderately rejected. Legs dull ferruginous. Abdomen longer than the head and thorax; 1st segment about one-half longer than its apical width; faintly rugulose; 2nd and 3rd forming together an attenuated cone, scarcely as long as the following segments united; these latter are strongly compressed like the blade of an oar, vertically. Terebra exserted, with slender valves. ♂ Antennæ longer and more slender than those of the ♀, 20-21-jointed; stigma and nervures fuscous; legs dull rufopiceous, much longer and more slender. Length,  $1\frac{3}{4}$  lines; ♂  $1\frac{1}{2}$  lines.

Taken by Haliday in North Ireland, on the banks of rivers and lakes, but not commonly.

## VII. CHÆNUSA, Hal.

Hal., Hym. Brit., ii., p. 19 (1839).

Maxillary palpi 6-jointed, the last joint suboval; labial 4-jointed, the two last joints short, consolidated so as to form a club somewhat longer than the 2nd joint. Head somewhat transverse, sub-cubic, widened behind the eyes, smooth, shining, finely pubescent; eyes beset with scattered hairs; mandibles subcompressed in the form of a prism, as in *Chorebus*, tridenticulate. Thorax densely punctulate, pubescent; prothorax large, transversely wrinkled; mesothoracic furrows as in *Chorebus*, but smoother, the medial line almost effaced; a linear fovea before the scutellum; mesopleurae smooth, the usual furrow crenulate; metathorax short, rounded, rugose. Stigma oval-lanceolate, shorter than in *Chorebus*, and broader than the length of the 1st abscissa, emitting the radial nervure from very near the middle; radial areolet small, shorter than the præbrachial, remote from the tip of the wing; recurrent nervure very slightly rejected; 2nd discoidal areolet completely closed. Abdomen as long as the head and thorax, depressed, spathulate in the ♀, elongate-oval in the ♂; 1st segment twice as long as its apical width, very little narrowed at the base, finely striolate and margined, its tubercles almost effaced; before them there is generally a transverse impression resembling a false suture; the following segments smooth, ciliate on the hind margin. Terebra very short.

The single species of this genus has the general appearance of a *Chorebus*, differing only in the neuration and the labial palpi: this latter character probably induced Haliday to establish a new subgenus, though at the present day it would hardly be regarded as of primary importance. Nees von Esenbeck strangely placed the insect in his genus *Perilitus*, notwithstanding the mandibles, which are those of the *Evodontes*, and not considering his own closely allied species *Gyrocampa affinis*, which he more correctly referred to the genus *Alysiæ*.

1. *Chænusa conjungens*, Nees. (Pl. I., fig. 6.)

*Bracon conjungens*, Nees, Mag. Ges. Berl., 1811,  
p. 27, pl. ii., fig. 7.

*Perilitus conjungens*, Nees, Mon., i., p. 33, ♂ ♀.

*C. conjungens*, Hal., Hym. Brit., ii., p. 19; Marsh.,  
*lib. cit.*, p. 511, ♂ ♀.

Black; ♀ mandibles testaceous; labrum and palpi ferruginous. Antennæ longer than the body, 24-25-jointed. Wings hyaline; squamulæ brownish; stigma fuscous in the ♂, ferruginous in the ♀. Legs ferruginous; trochanters and base of the tibiæ paler; knees and tips of the tarsi infuscated. Terebra scarcely as long as the last segment. Length, 1-1½ lines; exp., 2¼-3 lines.

Found in England and Ireland; originally by Nees in Franconia. I have taken three, in Devonshire and Cornwall; the species is not uncommon in swampy places.

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EXPLANATION OF PLATE I.

DACNUSIDÆ.

- FIG. 1. *Dacnusa ampliator*, Nees, ♀. 1a Antenna.  
 2. *Dacnusa petiolata*, Nees, ♂.  
 3. *Dacnusa areolaris*, Nees, ♀.  
 4. Wing of *Dacnusa abdita*, Hal.  
 5. *Gyrocampa uliginosa*, Hal., ♀.  
 6. *Chænusa conjungens*, Nees, ♂.